

What is claimed is:

1. An electrical rocker paddle switch comprising:

a switch housing:

a manually movable rocker paddle coupled to the housing;

5 actuator means having a first end and a second end, said actuator means attached to the rocker paddle at the first end and movable in response to the movement of the rocker paddle;

cam means driven by the second end of the actuator means to alternately rotate in a first and second opposite direction as the rocker paddle is alternately depressed;

10 slider means having a slider position determining cam follower coupled to be moved alternately in a first and a second opposite direction along a common linear axis by rotation of the cam means in the first and second opposite direction;

a fixed stationary contact and a movable brush contact mounted to the switch housing, the movable brush contact biased to contact the fixed stationary contact to thereby electrically close the switch, the movable brush contact being movable by the slider means to disengage the

15 fixed stationary contact to thereby electrically open the switch; and

a cam shaped leaf spring positioned within the switch housing and coupled to the slider position determining cam follower on the slider means to aid in the movement of the slider means.

20 2. The electrical rocker paddle switch of claim 1 wherein the actuator means comprises a flat strip member that can flex in a direction along the length of the switch.

25 3. The electrical rocker paddle switch of claim 1, wherein the slider means comprises a tapered opening for receiving therein the cam means, the tapered opening having predetermined dimensions to provide a fit with the cam means inserted therein whereby substantially all of the rotating motion of the cam means is applied to the slider means to move the movable brush contact.

30 4. The electrical rocker paddle switch of claim 1, wherein the switch housing further comprises a switch base having separate chambers therein for individually housing the slider and the cam shaped leaf spring.

5. The electrical rocker paddle switch of claim 4 wherein the chamber for housing the cam shaped leaf spring has a length greater than that of the cam shaped leaf spring such that the ends of the spring are not constrained.

5

6. The electrical rocker paddle switch of claim 4 wherein the rocker paddle is pivotly coupled to the switch housing.

7. The electrical rocker paddle switch of claim 6 further comprising a window in the rocker paddle to pass light from illumination means mounted in the switch housing.

10

8. The electrical rocker paddle switch of claim 7 wherein the illumination means comprises a light bulb and a voltage dropping resistor connected in series with the light bulb.

15

9. The electrical rocker paddle switch of claim 4 further comprising front and rear wire clamp means mounted to the switch housing and coupled to the fixed stationary contact and the movable brush contact.

10. The electrical rocker paddle switch of claim 4 further comprising a unitary mounting strap attached to the switch housing, the mounting strap providing a cradle like support for holding the switch in a wall box.

20

11. The electrical rocker paddle switch of claim 10 wherein the mounting strap is made of sheet metal.

25

12. An electrical rocker paddle switch comprising:

a switch housing;

a manually movable rocker paddle coupled to the housing;

actuator means having a first end and a second end, said actuator means attached to the

30 rocker paddle at the first end and movable in response to the movement of the rocker paddle;

cam means driven by the second end of the actuator means to alternately rotate in a first and second opposite direction as the rocker paddle is alternately depressed

slider means having a slider position determining cam follower coupled to be moved alternately in a first and a second opposite direction along a common linear axis by rotation of

5 the cam means in the first and second opposite direction;

a fixed stationary contact and a movable brush contact mounted to the switch housing, the movable brush contact biased to contact the fixed stationary contact to thereby electrically close the switch, the movable brush contact being movable by the slider means to disengage the fixed stationary contact to thereby electrically open the switch; and

10 a cam shaped leaf spring positioned within the switch housing and coupled to the slider position determining cam follower on the slider means to aid in the movement of the slider means;

the cam shaped leaf spring being substantially symmetrical about a central apex comprised of two relatively short cam portions which extend downward, respectively on each side of the apex forming an obtuse angle where, at each end of each short cam portions there is an upward extending portion to form a depressions with each relatively short cam portion, where, thereafter, each upward extending portion rests on support means and the ends of the upward extending portions beyond the support means are bent downward.

20 13. An electrical rocker paddle switch comprising:

a switch housing:

a manually movable rocker paddle coupled to the housing;

actuator means having a first end and a second end, said actuator means attached to the rocker paddle at the first end and movable in response to the movement of the rocker paddle;

25 cam means driven by the second end of the actuator means to alternately rotate in a first and second opposite direction as the rocker paddle is alternately depressed

slider means having a slider position determining cam follower coupled to be moved alternately in a first and a second opposite direction along a common linear axis by rotation of the cam means in the first and second opposite direction;

30 a fixed stationary contact and a movable brush contact mounted to the switch housing, the movable brush contact biased to contact the fixed stationary contact to thereby electrically

close the switch, the movable brush contact being movable by the slider means to disengage the fixed stationary contact to thereby electrically open the switch; and

a cam shaped leaf spring positioned within the switch housing and coupled to the slider position determining cam follower on the slider means to aid in the movement of the slider

5 means;

the cam shaped leaf spring being substantially symmetrical about a central apex comprised of two relatively short cam portions which extend downward, respectively on each side of the apex forming an obtuse angle where, at each end of each short cam portions there is an upward extending portion to form a depressions with each relatively short cam portion, where,

10 thereafter, each upward extending portion rests on support means and the ends of the upward extending portions beyond the support means are bent downward;

the switch housing further including a switch base having separate chambers therein for individually housing the slider means and the cam shaped leaf spring.

15 14. The electrical rocker paddle switch of claim 1 wherein

the manually movable rocker paddle has a vertical axis along its length and a horizontal axis along its width wherein the surface of the rocker paddle along its vertical axis has a contour of positive first differential comprised of a combination of splines drawn between points of varying distances from a datum plane

20

15. The electrical rocker paddle switch of claim 14 wherein the surface along the vertical axis has a contour of zero second differential comprised of splines drawn between points of varying distance from a datum plane when the rate of height increase of the individual splines is constant.

25

16. The electrical rocker paddle switch of claim 14 wherein a section along the horizontal axis has a surface with contour of a positive first differential and negative second differential, comprised of a combination of splines drawn between points of varying distances from the datum plane.

30

17. The electrical rocker paddle switch of claim 14 wherein a section along the vertical axis of the surface of the paddle has a contour of positive first differential, comprised of splines drawn between points of varying distance from a datum plane, and a section along the horizontal axis has a surface contour of a positive first differential and negative second differential, comprised of a combination of splines drawn between points of varying distances from the datum plane.

18. The electrical rocker paddle switch of claim 17 wherein the section along the vertical axis of the surface has a contour of zero second differential comprised of splines drawn between points of varying distances from a datum plane when the rate of height increase of the individual splines is constant.

19. The electrical rocker paddle switch of claim 14 wherein the paddle is not within a frame.

20. The electrical rocker paddle switch of claim 12 wherein the manually movable rocker paddle has a vertical axis along its length and a horizontal axis along its width wherein the surface of the paddle along its vertical axis has a contour of positive first differential comprised of a combination of splines drawn between points of varying distances from a datum plane

21. The electrical rocker paddle switch of claim 20 wherein the surface along the vertical axis has a contour of zero second differential comprised of splines drawn between points of varying distance from a datum plane when the rate of height increase of the individual splines is constant.

22. The electrical rocker paddle switch of claim 20 wherein a section along the horizontal axis has a surface with contour of a positive first differential and negative second differential, comprised of a combination of splines drawn between points of varying distances from the datum plane.

23. The electrical rocker paddle switch of claim 20 wherein a section along the vertical axis of the surface of the paddle has a contour of positive first differential, comprised of splines drawn between points of varying distance from a datum plane, and a section along the horizontal axis has a surface contour of a positive first differential and negative second differential, comprised of a combination of splines drawn between points of varying distances from the datum plane.

24. The electrical rocker paddle switch of claim 23 wherein the section along the vertical axis of the surface has a contour of zero second differential comprised of splines drawn between points of varying distances from a datum plane when the rate of height increase of the individual splines is constant.

25. The electrical rocker paddle switch of claim 20 wherein the paddle is not within a frame.